Notice of Allowability	Application No.	Applicant(s)	
	10/712,715	SUYAMA ET AL.	
	Examiner	Art Unit	
	FRANK W. LU	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *October 24, 2008*.

2. ☒ The allowed claim(s) is/are *17,19,22 and 23*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *3/2009*.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Frank W Lu / Primary Examiner, Art Unit 1634	March 19, 2009

DETAILED ACTION

Reasons for Allowance

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Peter Bernstein (Reg. No. 43,497) on March 18, 2009.

2. The application has been amended as follows:

Cancel claim 25.

17. (Currently amended) A method of simultaneously detecting or quantifying n kinds of different target nucleic acids in a specimen, wherein each of the n kinds of different target nucleic acids contains a first partial sequence Fa and a second partial sequence Sa and [each of the target nucleic acids] is set forth as Fa-Sa, wherein said Fa is one of sequences F1 to Fn, and said Sa is one of sequences S1 to Sn, wherein n is an integer of 2 or more comprising:

(a) preparing different nucleic acid probes A1 to An and different nucleic acid probes B1 to Bn, Aa is one of the nucleic acid probes A1 to An and Ba is one of the nucleic acid probes B1 to Bn, wherein n is an integer of 2 or more,

said probe Aa has a sequence F'a complementary to the first partial sequence Fa of the target nucleic acid Fa-Sa and a first binding molecule bound to the sequence F'a, wherein said F'a is one of sequences F'1 to F'n and the first binding molecule is a part of said probe Aa, and wherein n is an integer of 2 or more, and

said probe Ba has a sequence S'a complementary to the second partial sequence Sa of the target nucleic acid and a sequence hybridized with a flag sequence [bound to the sequence S'a], wherein said flag sequence is a part of said probe Ba and comprises four nucleic acid sequences SD, $D0_j$, $D1_k$, and ED, each of said SD, $D0_j$, $D1_k$, and ED having a desired sequence, and linked in the form of SD-$D0_j$-$D1_k$-ED; wherein the sequences $D0_j$ and $D1_k$ are located between said SD and ED and a sequence combination of $D0_j$ and $D1_k$ is set forth as $D0_j$-$D1_k$; and wherein said SD and ED are primer sequences, wherein said S'a is one of sequences S'1 to S'n, said $D0_j$ is one of sequences $D0_1$ to $D0_n$, and said $D1_k$ is one of sequences $D1_1$ to $D1_n$, and wherein n is an integer of 2 or more[, and wherein j and k are arbitrary natural numbers] and said $D0_j$-$D1_k$ in said flag sequence of each of the nucleic acid probes B1 to Bn are different,

(b) mixing [the] said probes A1 to An and [the] said probes B1 to Bn with the specimen, respectively, thereby hybridizing [the probe Aa with the first partial sequence Fa the target nucleic acid Fa-Sa] said probes A1 to An with their corresponding said F1 to Fn of the n kinds of different target nucleic acids and simultaneously hybridizing [the probe Ba with the second partial sequence Sa of the target nucleic acid Fa-Sa] said probes B1 to Bn with their corresponding said S1 to Sn of the n kinds of different target nucleic acids;

(c) ligating [the probe Aa and the probe Ba that are located on the target nucleic acid Fa-Sa] said probes A1 to An that are located on said F1 to Fn of the n kinds of different target nucleic acids to their corresponding said probes B1 to Bn that are located on said S1 to Sn of the n kinds of different target nucleic acids, thereby obtaining [a probe having both said probe Aa and said probe Ba set forth as Aa-Ba] n kinds of different ligated probes A1-B1 to An-Bn wherein each said ligated probes A1-B1 to An-Bn comprises one said flag sequence;

(d) binding the first binding molecule of [said probe Aa] said probes A1 to An in said ligated probes A1-B1 to An-Bn to substances capable of being paired with the first binding molecule, thereby [recovering the probe Aa-Ba] dissociating said ligated probes A1-B1 to An-Bn from the n kinds of different target nucleic acids;

(e) [dissociating D0j-D1k] obtaining n kinds of different flag sequences by isolating each said flag sequence from said ligated probes A1-B1 to An-Bn;

(f) amplifying [$D0_j$-$D1_k$] the n kinds of different flag sequences by polymerase chain reaction (PCR), wherein the PCR uses a primer labeled with a marker substance and the n kinds of different flag sequences as templates, and thereby obtaining n kinds of different amplification products [$D0_j$-$D1_k$] labeled with the marker substance [is bound]; and

(g) detecting or quantifying [the marker substance of] the n kinds of different amplification products [$D0_j$-$D1_k$] labeled with the marker substance, and thereby detecting or quantifying the n kinds of different target nucleic acids in the specimen.

19. (Currently amended) The method according to claim 17, wherein step [(e)] (f) further comprises:

[amplifying the dissociated D0j-D1k by PCR, wherein the PCR uses a] another primer labeled with a second binding molecule, and thereby obtains n kinds of different amplification products [D0j-D1k] labeled with the marker substance and the second binding molecule, and binding the second binding molecules of the n kinds of different amplification products [D0j-D1k] labeled with the marker substance and the second binding molecule to substances capable of being paired with the second binding molecule, thereby recovering the n kinds of different amplification products [D0j-D1k] labeled with the marker substance and the second binding

molecule.

22. (Currently amended) The method according to claim 17, wherein, in said step (d), said substances capable of being paired with the first binding molecules are immobilized on beads such that [the probes Aa-Ba is] said ligated probes A1-B1 to An-Bn are [recovered] dissociated from the n kinds of different target nucleic acids by binding [the probe Aa-Ba] said ligated probes A1-B1 to An-Bn to the beads via the first binding molecules.

23. (Currently amended) The method according to claim 17, wherein said marker substance is a fluorescent substance [such that target nucleic acids are detected or quantified by quantifying the fluorescent substance].

3. The following is an examiner's statement of reasons for allowance:

Claims 17, 19, 22, and 23 are allowable in light of applicant's amendments filed on October 24, 2008 and the examiner's amendments. The examiner's amendments in claims 17, 19, and 22 are supported by original filed claims 11 and 12, Figures 2-6, and Example 5 of the specification. The closest prior art in the record is Carrino *et al.,* (WO 96/15271, published on May 23, 1996) and Barany *et al.,* (WO 97/45559, published on December 4, 1997). These prior art do not teach method steps e) and f) of claim 17. These prior art either alone or in combination with the other art in the record do not teach or reasonably suggest a method of simultaneously detecting or quantifying n kinds of different target nucleic acids in a specimen which comprises all limitations recited in claim 17.

Any comments considered necessary by applicant must be submitted no later than

the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

4. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CAR § 1.6(d)). The CM Fax Center number is (571)273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Lu, Ph.D., whose telephone number is (571)272-0746. The examiner can normally be reached on Monday-Friday from 9 A.M. to 5 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla, can be reached on (571)272-0735.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

/Frank W Lu /
Primary Examiner, Art Unit 1634
March 19, 2009